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SCIENCE.—SUPPLEMENT.

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INDUCED SOMNAMBULISM.

THE activity with which the study of mental phenomena, and especially of hypnotism, is now being pursued, is remarkable. Constantly publications are being brought to our notice, dealing with these popular topics, either in a literary, an empirical, or scientific way. Among the last to claim attention is a little work¹ by Prof. H. Beaunis of the faculty of medicine at Nancy, who has attempted to apply to the study of induced somnambulism scientific experimental methods. His work deals with the question from both physiological and psychological points of view, and treats of both mental and physical conditions. The substance of his more important observations and deductions, in the concluding chapters, is here presented.

What is the mental state of the hypnotized person during sleep? Is the intelligence active, and are the thoughts of the subject engaged? Observations seem to show that there is an absolute repose of the thoughts, except when under the influence of external impressions. When a hypnotized subject is asked of what he is thinking, the response is nearly always, 'Of nothing.' There is a state of intellectual inertia, or, better, of intellectual repose, in accord with the physical aspect of the hypnotized person: the body is immovable, the features impassible, with a general expression of calmness and tranquillity rarely attained in ordinary sleep. There are evidently no dreams nor thoughts of any kind; for those subjects who recollect very well whatever has transpired in some previous like condition recall nothing of an hypnotic sleep during which there have been received no external impressions.

Thus, contrary to the opinion of many physicians, undisturbed hypnotic sleep may be regarded as more recuperative; and from the observations made, both by the author and Dr. Liébeault, a part of the therapeutic effects produced by hypnotism may be attributed to the beneficial character of the induced sleep. It is often asked whether, in ordinary sleep, the brain remains inactive, and many reasons have been given to prove the contrary. Facts, however, seem to show, that, when

it is profound, the brain is really as inactive as in the induced sleep.

This inertia of thought is, however, only a conditional one in hypnotism: the merest suggestion, a single word pronounced by the hypnotizer, suffices to produce an activity that may be very highly developed, sometimes even more than in the normal state. The judgment of the hypnotized person is good, and in general he reasons correctly and logically. "That which is the most striking," says Dr. Liébeault, "is his power of deduction: whatever may be the result of his intellectual elaboration, his train of reasoning is logical and rapid." It seems, then, incorrect to consider the hypnotized person as an unconscious machine, incapable of reasoning and of judgment, as Pitres has done. It is true, he lacks the impelling motive; but impulsion once given, the intellectual machine is set in motion with more regularity and precision than in the waking state even.

The author says, however, that he has never observed the marvellous phenomena admitted by certain magnetizers, such as mental divination, second sight, prophetic powers, etc. The subjects were never able to divine the nature of an object enclosed in the hand, nor to tell one's thoughts, or events that had transpired unknown to them. In regard to predictions, the same was likewise true: a subject was never able to announce any event in advance in which the prediction was realized. A fact which the author has tested many times, and which seems to admit of no doubt, is that certain subjects are able to recognize by the touch, or at least without the aid of sight or hearing, the sex and approximate age of persons with whom they come in contact; and in many cases the subject was able to designate immediately, upon seeing persons unknown to them, the nature and location of maladies under which they were suffering. All such facts of hypnotism, however strange they appear, may be explained by an increased activity of the senses, by an excessive sensorial sensitiveness, such as is known to occur in the somnambulist.

There is one point of special interest in the mental state of the hypnotized person which the author examined with care. Will the somnambulist prevaricate or lie while in that condition? According to Pitres, certain subjects during the hypnotic state falsify voluntarily and knowingly; but such cases were never observed by the author.

¹ *Le somnambulisme provoqué, études physiologiques et psychologiques.* Paris, Baillière, 1886. 12°.

Sometimes they would refuse to reply to questions, or would hesitate in answering, but in no case did he ever know of their telling a downright falsehood. Were it possible to test those naturally vicious, the results might be different; and it would be of great interest to examine, in this respect, the professional criminal. The hypnotized person, in fine, is entirely open, not only in his actions, but also in his most intimate thoughts and sentiments: every thing appears — vices, faults, virtues, passions — with entire simplicity and the most complete *naïveté*.

One of the most difficult problems in induced somnambulism is that of the relation existing between the subject and the hypnotizer. No matter how profound the sleep may be, the subject understands all that is said to him by the hypnotizer, though he may not understand that which is addressed by the latter to a third person. This relation is established through any or all of the senses. Though the hypnotizer may use the utmost precaution not to reveal his presence in taking the hand of the subject, he will immediately be recognized, and the subject will obey the impressions conveyed. Should the subject's arm be raised, it will remain in any given position, though, if done by a third person, it will fall immediately inert. Let passes be made in his immediate proximity, either in front or behind, and the subject will recognize whether they are done by the hypnotizer or some strange person. Can this be attributed to a superexcitation of the tactile sensibility? One cannot say. If the subject is asked how he knows who it is that makes these passes, he invariably replies, that he feels him. A subject may be placed *en rapport* with a third person by the simple command of the hypnotizer, when he will obey him with the same implicitness.

In what, then, does this singular phenomenon of the relation between hypnotizer and hypnotized consist? Noizet and Bertrand, together with Dr. Liébéault, accept the explanation of this affinity or relation as the result of the attention given to the hypnotizer by the subject while being placed in that condition, and that it does not differ from that seen every day in ordinary sleep. A mother sleeping near the cradle of her child does not cease to watch over it, and, though insensible to the loudest tones, is conscious of the lightest cry of her infant. By this hypothesis the imagination of the subject produces the effect, and there is no special relation, physical or physiological, between hypnotizer and hypnotized. The subject, says Carpenter, is possessed by a preconceived conviction that one particular individual is destined to exercise upon him an especial influence, and that

it is the effect of a predominant idea suggested, directly or indirectly, by the magnetizer himself. Persons who hypnotize themselves for the first time, and without placing their thoughts especially upon any one person, are apt to receive the impressions of any by-stander.

Although certain facts seem to substantiate these views, there are others which are not easily explained by them, and which seem to indicate some real relation between hypnotizer and hypnotized.

Any attempt to explain these varied phenomena, or to establish some general theory of induced somnambulism, is yet premature; nor will the solution of the problem be possible till the functions of the brain, and especially the physiology of natural sleep, are better known than they are at present. One may, however, seek solutions of particular groups of phenomena.

By many authors most of the phenomena are explained by the concentration of attention, — the concentration of thought. It is well known that the mind may exert a most remarkable power over the organism, controlling or producing the most lively sensations of pain, and even causing sickness or death; but attention or concentration gives no real explanation. According to Durand de Gros, the essential feature is the suspension of all mental activity, except in some one direction; and, as nervous force continues to accumulate in the brain, there results a nervous congestion. The direction of this force in any one particular course, or to any sensorial organ, augments the activity in an extraordinary degree.

This influence of the attention and the concentration of thought in the phenomena of hypnotism may be readily accepted, especially so far as they concern the sensations; but there are facts that are not easily explained by them. One may understand that a hypnotized person, under the influence of an immediate impression, may believe that he sees or hears an absent person; but how can the fact be explained that the subject will see or hear him at a certain time, a week or more distant, when he has been so told by the hypnotizer? Does the hallucination rest wholly in abeyance during these days, to re-appear at a fixed time? Has there been a concentration of thought during all this time?

There are also other facts that must be taken into consideration. How does concentration of thought cause certain physiological phenomena, such as variations in the beating of the heart, redness and congestion of the skin, the production of blisters, etc., which are known to occur in the hypnotic state? Neither the will alone, nor suggestions from without, seem to be sufficient to

explain them. There must be some modification of the cerebral innervation, a receptivity and an aptitude very different from those in the normal state.

A distinct and strong impression must be made upon the somnambulist in order to command his attention, — a nervous shock arresting the course of his thoughts. This cerebral shock, if it may be so expressed, seems to be the *sine qua non* of success: it produces a sort of cerebral modification, some particular unknown state, without which impressions can have no effect. It is of interest to inquire whether we do not find analogous physiological or pathological states. There would seem to be certain features of surgical shock following severe operations, and causing singular conditions of mental alienation, that are similar; and is there not also a resemblance shown in the condition of deep mental abstraction witnessed in some persons? The characteristic trait of all these different conditions is a momentary suspension, more or less complete, of cerebral activity. This suspension may present all varying degrees, from the profound collapse following surgical operation, to the simple mental distraction.

THE NATURE OF SO-CALLED DOUBLE CONSCIOUSNESS AND TRIPLE CONSCIOUSNESS.

THERE is a rather widely spread impression that human beings can be subjects of double consciousness, and can lead two separate lives, in each of which the individual has a distinct set of personal characteristics. Illustrations of this supposed psychological possibility are found in many recent works of fiction, notably in the 'Archibald Malmaison' of Julian Hawthorne, and 'Called back' of Hugh Conway. Some medico-legal interest has also been attached to the question in a number of instances. Having had one case somewhat of this character under observation, I have been led to examine the matter critically.

There are on record in French, German, English, and American medical literature only seventeen cases whose history in any way entitles them to come under the designation of cases of double consciousness. Most of them were reported from forty to sixty years ago, and without very great accuracy in detail. An examination of all these histories, and the study of cases allied to them, lead one very positively to the conclusion that such a thing as a true double consciousness, or dual life, does not exist. There are several striking instances in which persons have lived an apparently double life, but in each case the second life represented simply a partial activity of the

patient's brain. In the second and morbid state a portion, viz., the higher volitional centres, have their activity inhibited, the mind is dull, the disposition apathetic, and memory of the past is gone. Indeed, this loss of the faculty by which stored-up impressions of the past are revived is the main psychological feature of some cases.

In 1845 Dr. Skae reported the case of a lawyer, of whom he said, "He appears to have a double consciousness, a sort of twofold existence, one half of which he spends in the rational and intelligent discharge of his duties; the other, in a state of helpless hypochondriasis, almost amounting to complete aberration." His attacks occurred every other day. In the classical case reported by Azam, the patient, in one mental state, was dull, apathetic, and little better than an automaton, showing here, again, that it was a condition in which some of her mental faculties were suspended. A Kentucky farmer twenty-three years old was accidentally struck on the head with a hammer. He was unconscious for several hours, but recovered, and seemed as well as ever. He married, and had children, but, after eight years, began to show signs of insanity. He was trephined, and his mental faculties were completely restored; but the whole eight years since the blow on his head was a complete blank. He did not know his wife, or children, or any of his later associates. This was not so much a case of double consciousness, though so reported, as of loss of memory.

The theory that the two mental states correspond with special activity of one side or the other side of the brain, is not at all tenable, because, if for no other reason, one of the cerebral hemispheres may be almost entirely destroyed, or its connecting commissure may be injured or absent without producing any such phenomenon as double consciousness, or a change in personality. Besides, there have been at least two cases reported in which three different mental states occurred. One of them was recently reported by J. Voisin. A young man suffering from hysteria major had an attack of amnesia, or loss of memory, lasting for a year: there was entire forgetfulness of his past, a change in his character and demeanor. This state could be artificially changed into a third state by hypnotizing him, after which he would return to his second or abnormal state. After being restored to his normal mind for a year, he had another attack of amnesia, lasting three months, and during this time he remembered only what had happened in his previous attack.

States of double or triple consciousness are either disorders of memory, or instances of suspension of the higher volitional powers, being then cases of hypnotism or of the epileptic automatic